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EXAMINER	
D AGOSTA, STEPHEN M	

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/770,491	KALLIO, JANNE	
	Examiner	Art Unit	
	Stephen M. D'Agosta	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 7-30-04 have been fully considered but they are not persuasive.

1. The examiner notes the cancellation of claim 12 to overcome the claim objection and the newly submitted Oath/Declaration.

2. The applicant argues that the prior art does not teach claims 1, 10 and 21 regarding WLAN and global cellular systems for mobility between these two systems. The examiner disagrees since Harrison teaches connectivity between a computer network (wired or wireless) and a cellular network:

> "..Harrison teaches a network architecture and method (abstract teaches apparatus and method) for WIO applications (figure 2) comprising, A WLAN comprising a WMC arranged to serve as a WLAN access point (C1, L34-43 and C1 1, L14-20 teaches a wireless LAN which inherently requires an access point transceiver and routing hardware WMC to provide access to a user - the examiner notes that Harrison's disclosure of a WLAN provides for the WAB #46 in figure 2 to be a WMC except that it would provide wireless access), A GSM network comprising a mobile station (MS) in a form of a dual-mode cell phone to access both WLAN and GSM technologies, a BTS to convert a mobile radio signal, a MSC arranged to establish call connection (figure 2 and C11, L14-46 – a cellular network inherently has a MSC and BTS), A handover module implemented in either the MS or WMC for providing seamless mobility between said GSM network and said WLAN when MS roams between said GSM network and WLAN (C11, L14-46 - handover is either mobile-initiated or system-initiated as is known in the art)..."

The examiner notes that Harrison's mobile device uses a wireless modem via cellular frequencies (eg. a cell phone) and a WLAN modem as well (C11, L14-16).

3. The applicant claims there is "...no way where a mobile station can roam from a GSM network to another radio network automatically and handover from and to another network.....". The examiner disagrees since Harrison teaches a mobile device that has cellular and WLAN transceivers/modems (C11, L14-16)

4. The applicant argues that "...no GSM network is disclosed, nor dual-mode cellular phone suggested...". The examiner disagrees since Harrison teaches generic cellular connectivity and reads on GSM. Harrison also, again, teaches a mobile device with cellular and WLAN connectivity and is considered a dual-mode device/phone (C11, L14-16).

5. The applicant argues that handover is not taught. The examiner disagrees since cellular phone systems inherently use handovers to operate since, as per the first rejection:

"...A handover module implemented in either the MS or WMC for providing seamless mobility between said GSM network and said WLAN when MS roams between said GSM network and WLAN (C11, L14-46 - handover is either mobile-initiated or system-initiated as is known in the art)..." .

6. The applicant argues that IDLE/ACTIVE mode is not taught. The examiner disagrees since these are two well-known operational modes that a mobile cellular device inherently uses. The examiner states that the mobile device will perform location updates as the user roams, whether in IDLE or ACTIVE mode.

> "....As per claim 2, Harrison teaches claim 1 wherein during an IDLE mode when the MS roams from the GSM network to the WLAN, the MS selects a WLAN radio (C11, L43-48 teaches needing to establish communications with at least one MTSO if communications are to flow outside the LAN environment which reads on the claim, and also C1 1, L20-29. Also the examiner points out that a VLR function would provide feedback to the HLR as well) but is silent on attempts a location update via said WLAN and a new location of the MS is updated at the MSC.
>
> Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the padicular mobile switching center now serving the mobile station. (C1 , L35-49).
>
> It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.
>
> ***IDLE and ACTIVE mode operations are well known in the ad and provide means for the cell phone to qerform various house-keeping functions and/or support functions at different times, Ie. when either IDLE or ACTIVE.***

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Harrison teaches a mobile device that can connect to both cellular and WLAN systems and that during various operational modes (ie. Active/Idle), the device will be required to perform updates to the systems. Given the fact that there are only so many modes for the phone to be in, ie. Active, Idle, Sleep, system updates are inherently performed during non-sleep mode times, ie. Active or Idle.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 10-11 and 21-22 rejected under 35 U.S.C. 102(b) as being anticipated by Harrison et al. US 5,796,727 (hereafter Harrison).

As per **claim 1**, Harrison teaches a network architecture and method (abstract teaches apparatus and method) for WIO applications (figure 2) comprising,

A WLAN comprising a WMC arranged to serve as a WLAN access point (C1, L34-43 and C11, L14-20 teaches a wireless LAN which inherently requires an access point/transceiver and routing hardware/WMC to provide access to a user – the examiner notes that Harrison's disclosure of a WLAN provides for the WAB #46 in figure 2 to be a WMC except that it would provide wireless access),

A GSM network comprising a mobile station (MS) in a form of a dual-mode cell phone to access both WLAN and GSM technologies, a BTS to convert a mobile radio signal, a MSC arranged to establish call connection (figure 2 and C11, L14-46 – a cellular network inherently has a MSC and BTS),

A handover module implemented in either the MS or WMC for providing seamless mobility between said GSM network and said WLAN when MS roams between said GSM network and WLAN (C11, L14-46 – handover is either mobile-initiated or system-initiated as is known in the art).

As per **claim 10**, Harrison teaches a network architecture (abstract teaches apparatus/method while figure 1-2 teach a architecture) for WIO applications (figure 2) comprising,

A local radio network comprising a WMC arranged to serve as a WLAN access point (C1, L34-43 and C11, L14-20 teaches a wireless LAN which inherently requires an access point/transceiver and routing hardware/WMC to provide access to a user – the examiner notes that Harrison's disclosure of a WLAN provides for the WAB #46 in figure 2 to be a WMC except that it would provide wireless access),

A cellular network comprising a mobile station operable in both local and cellular network (figure 2 and C11, L14-46 teaches the mobile capable of cellular (outdoor) RF connectivity and LAN (indoor) RF connectivity))

A handover module implemented in either the mobile or local radio network to provide seamless mobility between local network and cellular network when mobile roams between local and mobile networks (C11, L14-46 – handover is either mobile-initiated or system-initiated as is known in the art).

As per **claim 11**, Harrison teaches claim 10 wherein;

Said local radio network corresponds to a WLAN that is located in hotspot areas or where higher bit rate or higher QoS is desired and uses a radio technology that is different from cellular network (Harrison's teaching of the mobile connecting to a wireless LAN reads on hot spot capability [eg. IEEE802.11, Bluetooth, etc.] since it will provide a higher bit rate and QoS for LAN communications is well known in the art and disclosed by Harrison, see abstract "various classes of data communication services").

As per **claim 21**, Harrison teaches a network architecture (figures 1-2 and abstract), comprising;

A first wireless network comprising an entity arranged to serve as an access point (figure 2 shows cellular network comprising mobiles and MTSO, left side of page);

A second wireless network comprising a MS to access the first wireless network and the second wireless network (figures 1-2 and C1, L34-43 and C11, L14-20 teaches a wireless LAN which inherently requires an access point/transceiver and routing hardware/WMC to provide access to a user – the examiner notes that Harrison's disclosure of a WLAN provides for the WAB #46 in figure 2 to be a WMC except that it would provide wireless access), and

A handover module implemented at one of the first and second wireless networks to provide seamless mobility between the second wireless network and the first wireless network, when the mobile roams between the second and first networks (C11, L20-48).

As per **claim 22**, Harrison teaches claim 21 wherein;

Said first wireless network corresponds to a WLAN comprising said entity as a WMC to serve as an access point (C11, L14-20 teaches a wireless LAN which inherently requires an access point/transceiver and routing hardware/WMC to provide access to a user – the examiner notes that Harrison's disclosure of a WLAN provides for the WAB #46 in figure 2 to be a WMC except that it would provide wireless access); and

Said second wireless network corresponds to a GSM network comprising the MS in the form of a dual mode cell phone to access both WLAN and GSM radio technologies, a BTS and MSC to establish call connection (C11, L14-48 teaches a mobile with dual-mode capability to connect to cellular, eg. GSM, network and WLAN. A cellular system inherently requires a BTS and MSC).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, ~~12~~-13 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison as applied to claims 1, 11 or 22 above, and further in view of Andersson et al. US 6,230,017 (hereafter Andersson).

As per **claim 2**, Harrison teaches claim 1 wherein during an IDLE mode when the MS roams from the GSM network to the WLAN, the MS selects a WLAN radio (C11, L43-48 teaches needing to establish communications with at least one MTSO if communications are to flow outside the LAN environment which reads on the claim, and also C11, L20-29. Also the examiner points out that a VLR function would provide feedback to the HLR as well) **but is silent on** attempts a location update via said WLAN and a new location of the MS is updated at the MSC.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 13**, Harrison teaches claim 11 wherein during ACTIVE mode when the MS roams from the GSM network to the WLAN, the MS selects a WLAN radio (C11, L43-48 teaches needing to establish communications with at least one MTSO if communications are to flow outside the LAN environment which reads on the claim, and also C11, L20-29. Also the examiner points out that a VLR function would provide feedback to the HLR as well) **but is silent on** and attempts a location update via said WLAN and a new location of the MS is updated at the MSC.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 23**, Harrison teaches claim 22 wherein during IDLE mode when the MS roams from the GSM network to the WLAN, the MS selects a WLAN radio (C11, L43-48 teaches needing to establish communications with at least one MTSO if communications are to flow outside the LAN environment which reads on the claim, and also C11, L20-29. Also the examiner points out that a VLR function would provide feedback to the HLR as well) **but is silent on** and attempts a location update via said WLAN and a new location of the MS is updated at the MSC.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this

regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

Claims 3, 5, 7-9, 14, 16, 24, 26 and 28-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison as applied to claims 1, 11 or 22 above, and further in view of Ray et al. US 6,424,638 (hereafter Ray).

As per **claim 3**, Harrison teaches claim 1 wherein during an ACTIVE handover mode when the MS initiates a handover from the GSM to WLAN network, enables transmission of a handover request to the MSC of the GSM network until the MS is handed over to said WLAN (C11, L14-29 teaches handover from GSM to WLAN) **but is silent on** the MS measures GSM neighbor cells and reports a WLAN cell as an ordinary GSM cell.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that the MS measures GSM neighbors and reports a WLAN cell as a GSM cell, to provide the ability to handoff from the GSM system to the WLAN system.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 5**, Harrison teaches claim 1 wherein during ACTIVE handover mode when the MS initiates a handover from said WLAN to said cellular (eg. GSM) network (C11, L14-48 where L43-48 teaches handoff from GSM-to-WLAN and WLAN-to-GSM which reads on the claim) **but is silent on** the MS measures GSM neighbor cells, enables transmission of a handover request to the MSC via WMC of said WLAN until the MS is handed over to said GSM network.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the

neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that measurements are made by the mobile and a handover is performed (ie. between network components MSC, BSC/BTS, WAB/WMC, etc), to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 7**, Harrison teaches claim 1 wherein during ACTIVE handover mode when the MS initiates a handover from the GSM network to the WLAN:

said MS is handed over to said WLAN.(C11, L14-48 where L43-48 teaches handoff from GSM – WLAN and/or WLAN – GSM which reads on the claim,

but is silent on

the MS measures GSM neighbor cells, reports measurement results, determineds if a WLAN transmission level exceeds a limit and if said level exceeds a limit, last a WLAN cell first in said measurement results,

said BTS receives said measurement results and indicates a handover to a WLAN cell

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20). The examiner notes that Ray's BTS selects the best target, eg. lists it as being first in the neighbor list.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that measurements are made by the mobile and a handover is performed, to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 8**, Harrison teaches claim 1 wherein during IDLE mode when the MS roams from said WLAN to said GSM network (C11, L14-48 teaches handoff from GSM – WLAN and WLAN – GSM) **but is silent on**;

Said WMC informs GSM neighbor cells; and

Said MS first camps in said WLAN, measures a WLAN cell and informed GSM neighbor cells, determines if WLAN transmission level drops below a limit and, if the

WLAN transmission level drops below the limit, camps in said GSM network based on predetermined variables, makes a location update via said GSM network.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

The examiner notes that Ray's teachings read on the MS being camped in any network and then handing over and camping in another network as the user roams. Threshold limits are well know in the art to trigger miscellaneous events (eg. camp in another network) and a handover operation will require the MS and network to have predetermined variables set so the handover is successful and is based on the user's profile settings.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that WMC informs GSM neighbor cells, first camps in WLAN, measures a WLAN cell and informed GSM neighbor cells, determines if WLAN transmission level drops below a limit and, if the WLAN transmission level drops below the limit, camps in said GSM network based on predetermined variables, makes a location update via said GSM network, to provide the switching capability from one cell to another and/or from one network to another based on threshold measurements.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 9**, Harrison teaches claim 1 wherein during ACTIVE handover mode when the MS initiates a handover from the WLAN to said GSM network:

Said MS is handed over to said GSM network (C11, L14-48 where L43-48 teaches handoff from GSM – WLAN and WLAN – GSM)

But is silent on

Said MS measures WLAN cells and informed GSM neighbor cells and sends an indication if a WLAN transmission level drops below limit,

Said WMC calculates the best GSM target cell and starts a handover,

Said BTS sends GSM neighbor cells to said MS in response to a handover attempt.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that the MS measures WLAN cells and

informed GSM neighbor cells and sends an indication if a WLAN transmission level drops below limit, WMC calculates the best GSM target cell and starts a handover, BTS sends GSM neighbor cells to said MS in response to a handover attempt, to provide the switching capability from one cell to another and/or from one network to another based on threshold measurements.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 14**, Harrison teaches claim 11 wherein during ACTIVE handover mode when the MS initiates a handover from the GSM to WLAN network, enables transmission of a handover request to the MSC of the GSM network until the MS is handed over to said WLAN (C11, L14-29 teaches handover from GSM to WLAN) **but is silent on** the MS measures GSM neighbor cells and reports a WLAN cell as an ordinary GSM cell.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that the MS measures GSM neighbor cells and reports a WLAN as a GSM cell, to provide the ability for the MS to handoff from a GSM cell to a WLAN cell.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 16**, Harrison teaches claim 11 wherein during ACTIVE handover mode when the MS initiates a handover from said WLAN to said cellular (eg. GSM) network (C11, L14-48 where L43-48 teaches handoff from GSM-to-WLAN and WLAN-to-GSM which reads on the claim) **but is silent on** the MS measures GSM neighbor cells, enables transmission of a handover request to the BTS/MSC of the cellular network until the MS is handed over to said GSM network.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

The examiner notes that RF cellular transmission inherently requires the use of an MSC/BTS.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that measurements are made by the mobile and a handover is performed (ie. between network components MSC, BSC/BTS, WAB/WMC, etc), to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 24**, Harrison teaches claim 22 wherein during ACTIVE handover mode when the MS initiates a handover from the GSM to WLAN network, the MS measures neighbor cells and reports WLAN cell as ordinary GSM cell, enables transmission of a handover request to the MSC of the GSM network until the MS is handed over to said WLAN (C11, L14-29 teaches handover from GSM to WLAN) **but is silent on** the MS measures GSM neighbor cells and reports a WLAN cell as an ordinary GSM cell.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that the MS measures a GSM cell and reports a WLAN cell as a GSM cell, to provide the ability for the MS to handoff from a GSM cell to a WLAN cell.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 26**, Harrison teaches claim 22 wherein during ACTIVE handover mode when the MS initiates a handover from said WLAN to said cellular (eg. GSM) network (C11, L14-48 where L43-48 teaches handoff from GSM-to-WLAN and WLAN-to-GSM which reads on the claim) **but is silent on** the MS measures GSM neighbor cells, enables transmission of a handover request to the MSC via WMC of said WLAN until the MS is handed over to said GSM network.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that measurements are made by the

mobile and a handover is performed (ie. between network components MSC, BSC/BTS, WAB/WMC, etc), to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 28**, Harrison teaches claim 22 wherein during ACTIVE handover mode when the MS initiates a handover from the GSM network to the WLAN:

said MS is handed over to said WLAN.(C11, L14-48 where L43-48 teaches handoff from GSM – WLAN and/or WLAN – GSM which reads on the claim,

but is silent on

the MS measures GSM neighbor cells, reports measurement results, determineds if a WLAN transmission level exceeds a limit and if said level exceeds a limit, last a WLAN cell first in said measurement results,

said BTS receives said measurement results and indicates a handover to a WLAN cell

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20). The examiner notes that Ray's BTS selects the best target, eg. lists it as being first in the neighbor list.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that measurements are made by the mobile and a handover is performed, to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 29**, Harrison teaches claim 22 wherein during IDLE mode when the MS roams from said WLAN to said GSM network (C11, L14-48 teaches handoff from GSM – WLAN and WLAN – GSM) **but is silent on**;

Said WMC informs GSM neighbor cells; and

Said MS first camps in said WLAN, measures a WLAN cell and informed GSM neighbor cells, determines if WLAN transmission level drops below a limit and, if the WLAN transmission level drops below the limit, camps in said GSM network based on predetermined variables, makes a location update via said GSM network.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base

station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

The examiner notes that Ray's teachings read on the MS being camped in any network and then handing over and camping in another network as the user roams. Threshold limits are well know in the art to trigger miscellaneous events (eg. camp in another network) and a handover operation will require the MS and network to have predetermined variables set so the handover is successful and is based on the user's profile settings.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that WMC informs GSM neighbor cells, first camps in WLAN, measures a WLAN cell and informed GSM neighbor cells, determines if WLAN transmission level drops below a limit and, if the WLAN transmission level drops below the limit, camps in said GSM network based on predetermined variables, makes a location update via said GSM network, to provide the switching capability from one cell to another and/or from one network to another based on threshold measurements.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 30**, Harrison teaches claim 22 wherein during ACTIVE handover mode when the MS initiates a handover from the WLAN to said GSM network:

Said MS is handed over to said GSM network (C11, L14-48 where L43-48 teaches handoff from GSM – WLAN and WLAN – GSM)

But is silent on

Said MS measures WLAN cells and informed GSM neighbor cells and sends an indication if a WLAN transmission level drops below limit,

Said WMC calculates the best GSM target cell and starts a handover,

Said BTS sends GSM neighbor cells to said MS in response to a handover attempt.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that the MS measures WLAN cells and informed GSM neighbor cells and sends an indication if a WLAN transmission level drops below limit, WMC calculates the best GSM target cell and starts a handover, BTS sends GSM neighbor cells to said MS in response to a handover attempt, to provide the switching capability from one cell to another and/or from one network to another based on threshold measurements.

IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.

Claims 4, 6, 15, 17-20, 25 and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison in view of Andersson as applied to claims 1, 11, 17 or 22 above, and further in view of Ray et al. US 6,424,638 (hereafter Ray).

As per **claim 4**, Harrison teaches claim 1 wherein during IDLE mode when the MS roams from said WLAN to said GSM network, the MS selects a GSM radio (C11, L14-48, where L43-48 teaches handoff from GSM – WLAN and WLAN – GSM which reads on the claim) **but is silent on** the WMC informs GSM neighbor cells and attempts a location update via said GSM network and a new location of the MS is updated at the MSC.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the combination of Harrison and Anderson, such that the WMC informs GSM neighbor cells, to provide the switching capability from one cell to another and/or from one network to another.

IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.

As per **claim 6**, Harrison teaches claim 1 wherein during IDLE mode when the MS roams from the GSM network to the WLAN, (C11, L14-48 where L43-48 teaches

handoff from GSM – WLAN and WLAN – GSM whereby communication in one system continues until the mobile can register in the other system which reads on the claim. One skilled realizes that cellular systems utilize signal strength as a factor when making handoff decisions – as the user roams from outdoors to an indoor WLAN, the WLAN signal will become stronger and the phone will handoff from the GSM network to the WLAN network) **but is silent on** the MS first camps in said GSM network, measures neighbor cells for a WLAN cell and when a WLAN transmission level is acceptable, attempts a location update via said via said WLAN and when the location update is accepted, camps in said WLAN and remains ready to make a call.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams in ACTIVE or IDLE modes for registration purposes.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the combination of Harrison and Anderson, such that the WMC informs GSM neighbor cells, to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 15**, Harrison teaches claim 11 wherein during IDLE mode when the MS roams from said WLAN to said GSM network, the MS selects a GSM radio (C11, L14-48, where L43-48 teaches handoff from GSM – WLAN and WLAN – GSM which reads on the claim) **but is silent on** the WMC informs GSM neighbor cells and attempts a location update via said GSM network and a new location of the MS is updated at the MSC.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching

center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the combination of Harrison and Anderson, such that the WMC informs GSM neighbor cells, to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 17**, Harrison teaches a method for providing seamless mobility for a MS between a GSM network having a BTS and a MSC and a WLAN comprising a WMC arranged to serve as a WLAN access point (figures 1-2 and C1, L34-43 and C11, L14-20 teaches a wireless LAN which inherently requires an access point/transceiver and routing hardware/WMC to provide access to a user – the examiner notes that Harrison's disclosure of a WLAN provides for the WAB #46 in figure 2 to be a WMC except that it would provide wireless access), comprising;

But is silent on

Comprising a WMC arranged to serve as a WLAN access point,

During IDLE mode in said GSM network, selecting a WLAN radio and requesting a location update at said MSC via said WLAN;

Alternatively in said WLAN, selecting a GSM radio and requesting a location update at said MSC via said GSM network;

During an ACTIVE handover mode, measuring GSM neighbor cells to report a WLAN cell as an ordinary GSM cell, sending a handover request to said MSC of said GSM network via BTS of GSM network, until a handover is completed in said WLAN,

Alternatively, measuring GSM neighbor cells and sending a handover request to said MSC via a WMC of said WLAN until said handover is completed in said GSM network, and

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the combination of Harrison and Wu, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

The examiner notes that mobile phones inherently perform housekeeping activities IDLE mode while performing operations in ACTIVE mode, hence the mobile would perform location updates in IDLE mode and handoff procedures during ACTIVE mode.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the combination of Harrison, Wu and Anderson, such that the WMC informs GSM neighbor cells, to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 18,** Harrison in view of Wu, Anderson and Ray teaches claim 17 wherein said MS is a dual-mode phone operable in both WLAN and GSM networks (C11, L14-16).

As per **claim 19,** Harrison in view of Wu, Anderson and Ray teaches claim 17 wherein said WLAN is located in hotspot areas or where higher bit rate or higher QoS is desired and uses a radio technology that is different from GSM (Harrison's teaching of the mobile connecting to a wireless LAN reads on hot spot capability [eg. IEEE802.11, Bluetooth, etc.] since it will provide a higher bit rate and QoS for LAN communications is well known in the art).

As per **claim 20**, Harrison in view of Wu, Anderson and Ray teaches claim 17 wherein said MS and said WMC are implemented with a Handover module for controlling said MS to handover seamlessly between said WLAN and said GSM network

when said MS roams between said WLAN and said GSM network (C11, L14-48 teaches MS operating and handing-off between both WLAN and cellular systems. One skilled realizes that both mobile-initiated and system-initiated handoffs are known in the art).

As per **claim 25**, Harrison teaches claim 22 wherein during IDLE mode when the MS roams from said WLAN to said GSM network, the MS selects a GSM radio (C11, L14-48, where L43-48 teaches handoff from GSM – WLAN and WLAN – GSM which reads on the claim) **but is silent on** the WMC informs GSM neighbor cells and attempts a location update via said GSM network and a new location of the MS is updated at the MSC.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams for registration purposes.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station 25a checks the measurement report for each potential target base station 25b, and selects the best target base station 25b with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the combination of Harrison and Anderson, such that the WMC informs GSM neighbor cells, to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

As per **claim 27**, Harrison teaches claim 22 wherein during IDLE mode when the MS roams from the GSM network to the WLAN, (C11, L14-48 where L43-48 teaches handoff from GSM – WLAN and WLAN – GSM whereby communication in one system continues until the mobile can register in the other system which reads on the claim. One skilled realizes that cellular systems utilize signal strength as a factor when making handoff decisions – as the user roams from outdoors to an indoor WLAN, the WLAN signal will become stronger and the phone will handoff from the GSM network to the

WLAN network) **but is silent on** the MS first camps in said GSM network, measures neighbor cells for a WLAN cell and when a WLAN transmission level is acceptable, attempts a location update via said via said WLAN and when the location update is accepted, camps in said WLAN and remains ready to make a call.

Anderson teaches a telecommunications network with a MSC/HRL and as the mobile station travels into a location area that is handled by a different mobile switching center, a location update operation must occur so that both the home location register (HLR) and a visitor location register (VLR), typically at the mobile switching center, have appropriate current information about the mobile station and its whereabouts. In this regard, when a mobile station travels into an area having a different location identifier, a forced registration typically occurs. In the forced registration, the home location register (HLR) is updated regarding the particular mobile switching center now serving the mobile station. (C1, L35-49)

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Harrison, such that a location update is performed, to provide the system the ability to continually track the mobile unit as it roams in ACTIVE or IDLE modes for registration purposes.

Ray teaches a GSM MSC sends a request to the MS via the serving base station asking the MS to change its frequency and transmit a measurement report from the neighboring cell(s) of the new wireless system(s) back to the GSM base station. The GSM base station checks the measurement report for each potential target base station, and selects the best target base station with which to perform the handover (C6, L1-20).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the combination of Harrison and Anderson, such that the WMC informs GSM neighbor cells, to provide the switching capability from one cell to another and/or from one network to another.

**IDLE and ACTIVE mode operations are well known in the art and provide means for the cell phone to perform various house-keeping functions and/or support functions at different times, ie. when either IDLE or ACTIVE.*

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta
9-13-04

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